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MPIC/P&DS/320-65
15 September 1965

MEMORANDUM FOR: Chief, Imagery Analysis Division/CIA

SUBJECT: Measuring Eyepiece and Goniometer for the [redacted] High Power Stereoviewer

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REFERENCE: IAD Memo 78/65 dated 27 July 1965

1. This is to inform you that the following action has been taken in response to your memorandum:

a. A prototype eyepiece has been obtained from [redacted] which closely approximates the optical characteristics of the Filar Eyepiece used on the [redacted] Dual Power Measuring Macroscope. This eyepiece is currently undergoing evaluation in PAG and IAD. If it proves satisfactory additional units will be procured as an interim solution to your problem. [redacted] of this staff will handle any requests for additional information and/or procurement of this item.

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b. As an answer to the long range problem, an R&D project has been established, with [redacted] as monitor, to develop both a goniometer and a filar eyepiece that have been compensated for lateral color and, as a consequence, are compatable with the [redacted] Fluorator objective lenses currently utilized in our high power stereoviewers.

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2. Although we are proceeding with this project, as requested, we have certain reservations as to the use of these eyepieces and wish to make our position clear by pointing out the fundamental danger in their use in a zoom system. A zoom element is continuously variable; therefore each discrete zoom setting presents an image of different size at the measuring plane of the filar scale. As a consequence, the filar graduations, which remain constant, represent different scale increments for every possible zoom setting -- a dangerous situation. If these eyepieces are used, the zoom element should be set at the top (or bottom) of its range, the filar calibrated against a known physical scale and scale factor determined. Any subsequent change of the objective lens turret or zoom setting will require a new calibration and scale factor determination.





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3. We will keep you informed as additional progress is made on this project.

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Colonel, USAF
Assistant for Plans and Development

Distribution:
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25X1 NPIC/P&DS: [redacted] (16 Sep 65)

| TITLE OR SUBJECT OF SUGGESTION | CLASSIFICATION | SUGGESTION NO. |
|---|---|---|
| 25X1 Measuring Attachment for the [ ] High Power Stereoviewer (Dynazoom) | CONFIDENTIAL | |

**PRESENT METHOD**

There is no present method for measuring stereoscopically on photography utilizing portable equipment available to this Division.

**I SUGGEST**

Procurement and/or development of a pair of 20x eyepieces, one of which is equipped with a reticle graduated in .001 foot increments and a driven cursor utilizing a knob graduated to .00001 foot. The second eyepiece should be matched optically but without a reticle. Since this equipment would fit the standard [ ] eyepiece tube, it would be compatible with the Zoom-70 [ ] stereo microscope in common use throughout the photo interpretation area of the intelligence community as well as with the Dynazoom. 25X1 25X1

A piece of equipment which meets these optical and mechanical requirements is provided with the [ ] Stereo Microscopes, but these units are no longer in production, and are not compatible with the [ ] equipment due to eyepiece tube size differences. A relatively simple modification of the eyepiece shanks on these [ ] eyepieces would make them compatible if the items are available in sufficient numbers. 25X1 25X1 25X1

**ADVANTAGES**

This suggested application will save time and improve accuracy in identifications of equipment at high magnifications. It will provide greater versatility in the use of the vastly improved optics of the Dynazoom, and is particularly desireable for detailed reporting.